

Please wash your hands

Few doctors and nurses going about their day-to-day work would consider their hands posed a threat to their patients. Yet, bacterially speaking at least, they may do just that. It is possible that paediatricians, so often faced by the double incontinence of extreme youth, do more justice to hand washing than their colleagues in other disciplines. On the other hand, discreet observation in a neonatal intensive care unit over many years has convinced me that slipshod washbasin practice—by professors and probationers alike—is common; and handwashing all too often goes by default altogether on other wards where infants and children are nursed. Recent recording of the patterns of this important function in two American medical intensive care units showed that hands were washed after patient contact less than half the time, physicians being among the worst offenders.¹ This lack of hygienic principle—or, in transatlantic idiom, this 'low level of mysophobia'¹—was suggested as one of the most important reasons for hospital-caused infection. The role of the attendants' hands in transmitting bacteria to patients, suspected by Semmelweis and others more than a hundred years ago, is now well known.²⁻⁵ The liberal use of antimicrobial agents in intensive care units means these bacteria are often multiply antibiotic-resistant.

The skin is generally thought of as harbouring a resident and a transient bacterial flora;⁶ the former multiplies there and can be cultured repeatedly, the latter is present for only short periods. The nature and number of residents and transients may differ between individuals and various body sites, but nearly everybody carries *Staphylococcus epidermidis*, micrococci, and diphtheroids as resident flora all over the body. The transient organisms on the hands, acquired by contact with the environment, are more likely to have a Gram-negative component, particularly among hospital staff; and it is the skin under and around the finger nails which carries the highest number of organisms. The transient flora can be largely removed by washing with ordinary soap and running water, or even by friction and running water alone.^{7,8} Use of antiseptic solutions is necessary to reduce the resident flora.⁹ However in tests among nurses simulating handwashing which used a skin colouring dye, parts of the thumb and areas of the finger tips were found to be missed by a sizeable number; and right hands tended to be washed less effectively than left hands, presumably

by the right handed.¹⁰ Even the most careful hand wash may be totally negated by those who turn off contaminated taps or raise a bin lid to discard their used paper towel with those same washed hands, both incredible but all too common hospital mistakes. Occasionally admittedly elbow taps are so badly placed that it is almost an impossibility to move them with the elbow; and foot pedals raising the lids of waste bins may be defective. It is to be hoped that efficient foot-operated taps will have high priority in future hospital design. Washbasins too should be without overflow pipes which are impossible to clean, and frequently a source of *Pseudomonas aeruginosa*. In most hospitals the communal nail brush and the roller towel have been discarded years ago. Disposable paper towels should be covered by an effective dispenser. Bar soap should not stand in wet dishes, and such containers are rarely necessary. The soap bays of washbasins though need to be kept clean and dry.^{9,11}

Much careful work has been done on the effect of antiseptic preparations on the resident flora.^{12,13} Testing under laboratory conditions however does not always equate with in-use testing;¹⁴ and this may be accentuated when handwashing has to be done very frequently as in neonatal intensive care units.¹⁵ Nurses working in such units sometimes find that the repeated use of solutions—such as hexachlorophane, chlorhexidine, and povidone-iodine—has an irritant effect on the skin of their hands. When ablutions were performed as many as 100 times in an 8-hour shift, an actual increase in the bacterial count both before and after hand washing was found when a chlorhexidine preparation had been in use for one week.¹⁵ Damaged skin is known to be more heavily colonised, and Gram-negative bacteria may become established there as resident flora, leading to outbreaks of infection.¹⁶ Squamous particles carrying viable bacteria are dispersed into the air as hands are washed with ordinary soap, and only the bacterial dissemination is reduced when antiseptic lotions are used. A hand lotion containing alcohol, glycerol, and chlorhexidine used instead of handwashing prevents either occurring.¹⁷ This practice, which may save a little time and money,¹⁸ might perhaps be safely substituted for handwashing when its frequency has to be very high, but it is clear that more work needs to be done at the cot (or incubator) side in neonatal units on this all important practical issue. Loosely fitting disposable plastic

gloves may be worn in such units, and we do not know whether they have a beneficial role in protecting the patient, nor if their use might actually increase bacterial numbers on the wearers' hands, as happens for instance with tightly fitting surgical gloves.¹⁹ Meanwhile paediatricians (of all ages) would do well to remember that effective hand washing before and after attending to their patients, wherever they are nursed, should be considered a *sine qua non* of safe care.

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